

# Microchip EtherCAT®

## Product Selection Guide

### Introduction

Microchip offers several EtherCAT® Device Controller Products. These are also sometimes referred to as an ESC. This guide provides information to assist customers in selecting an EtherCAT product based on the different features offered. The guide contains information about key ESC features such as number of ports, the supported Process Data Interfaces (PDI), EEPROM sizes supported, as well as electrical and mechanical specification. For additional product details please refer to the specific product's datasheet.

### Product Selection Table

Product Features	LAN9252	LAN9253	LAN9254	LAN9255
<b>EtherCAT Ports</b>				
Number of ports available	1,2,3, 4*	1,2,3,4*	1,2,3,4*	1,2,3,4*
Number of PHY available	2 PHY, 1 MII**	2 PHY, 1 MII**	2 PHY, 1 MII**	2 PHY, 1 MII**
<b>Integrated MCU</b>				
Integrated Arm® Cortex®-M4F MCU	N	N	N	Y
10/100 Ethernet MAC (RMII)	N	N	N	Y
12-bit, 1 MSPS ADC	N	N	N	Y
<b>Process Data Interface (PDI)</b>				
DIGIO (IN/OUT/Bi-Directional)	16	16	32	16
SPI and in built GPIO (IN/OUT)	16	16	16	16
SPI/SQI	Y	Y	Y	Y
SPI with MII (For 3 port- 2 inbuilt PHY and 1 MII)	Y	Y	Y	Y
HBI Multiplex Sigle phase (8/16)	y	y	y	y
HBI Multiplex dual phase (8/16)	y	y	y	y
HBI demux (8/16)	N	N	y	N
HBI index	y	y	y	y
<b>Status LEDs</b>				
Link ACT LED	Y	Y	Y	Y
RUN LED	y	y	y	y
Error LED	N	Y	Y	Y
Link status LED	Y	Y	Y	Y

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<b>EEPROM</b>				
EEPROM size (in bits)	1K to 4M	1K to 4M	1K to 4M	1K to 4M
EEPROM emulation	N	Y	Y	Y
Sync manager	4	8	8	8
FMMU	3	8	8	8
PDARM size	4K	8K	8K	8K
Fibre support	y	N	N	N
Auto MDIX	y	y	y	y
WoL	y	y	y	y
PHY Auto negotiation control for 3 port via Firmware	Y	y	y	y
PHY Auto negotiation control for 3 port via Hardware strap	N	y	y	y
Power management	y	y	y	y
Power Over EtherCAT (PoE)	Y	Y	Y	Y
25 MHz chain clock	N	y	y	y
SQI Cable diagnosis	N	Y	Y	
Cycle time (Non DIGIO)	125 µSec	76.9 µSec	76.9 µSec	76.9 µSec
Package	64 QFN, 64 TQFP	64 QFN	80 TQFP	128 TQFP
<b>Temperature Rating</b>				
Commercial Version	0 to 70°C	0 to 70°C	0 to 70°C	0 to 70°C
Industrial Version	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C
Extended Industrial Version	-40 to +105°C	-40 to +105°C	-40 to +105°C	-40 to +105°C
Operational Voltage	3.0-3.6V	3.0-3.6V	3.0-3.6V	3.0-3.6V

Note: \*Expansion mode - Connect two 3 port devices back to back to achieve 4 port (One MII configures as upstream and other configures as downstream) \*\*MII is the 3rd port and used in 3 port and expansion mode

## Reference Documents

1. LAN9252 Datasheet
2. LAN9253 Datasheet
3. LAN9254 Datasheet
4. LAN9255 Datasheet